

1    **What is claimed is:**

2           1. A method of preventing a deadlock in a distributed shared memory system  
3 comprising a memory access request transaction queue including a plurality of queue  
4 slots, the method comprising:

5           reserving one or more queue slots for exclusive processing of processor return  
6 flow control class transactions.

7           2. The method of preventing a deadlock in accordance with claim 1, further  
8 comprising:

9           allowing a processor return flow control class transaction to be processed in the  
10 reserved one or more queue slots.

11          3. The method of preventing a deadlock in accordance with claim 2, further  
12 comprising:

13          providing a blocking flow control class transaction threshold indicating a  
14 maximum number of blocking flow control class transactions allowed to be processed in  
15 the memory access request transaction queue; and

16          preventing the memory access request transaction queue from accepting any new  
17 blocking flow control class transaction if a current number of blocking flow control class  
18 transactions already in the memory access request transaction queue is not less than the  
19 blocking flow control class transaction threshold.

20          4. The method of preventing a deadlock in accordance with claim 3, further  
21 comprising:

22          providing an entry threshold indicating a maximum number of entries allowed to  
23 be processed in the memory access request transaction queue; and

24          preventing the memory access request transaction queue from accepting any new  
25 entry if a current number of entries already in the memory access request transaction  
26 queue is not less than the entry threshold.

27          5. The method of preventing a deadlock in accordance with claim 4, wherein:

28          each of the entry threshold and the blocking flow control class transaction  
29 threshold is configurable by at least one of a user of the distributed shared memory  
30 system and a system software; and

31          wherein the entry threshold and the blocking flow control class transaction  
32 threshold are each selected so that the blocking flow control class transaction threshold is  
33 less than the entry threshold.

1           6. An apparatus for preventing a deadlock in a distributed shared memory system  
2 comprising a memory access request transaction queue including a plurality of queue  
3 slots, the apparatus comprising:

4           a coherency controller configured to reserve one or more queue slots for exclusive  
5 processing of processor return flow control class transactions.

6           7. The apparatus for preventing a deadlock according to claim 6, wherein:  
7           the coherency controller is configured allow a processor return flow control class  
8 transaction to be processed in the reserved one or more queue slots.

9           8. The apparatus for preventing a deadlock according to claim 7, further  
10 comprising:

11           a first register configured to store a blocking flow control class transaction  
12 threshold indicating a maximum number of blocking flow control class transactions  
13 allowed to be processed in the memory access request transaction queue; and

14           wherein the coherency controller is configured to prevent the memory access  
15 request transaction queue from accepting any new blocking flow control class transaction  
16 if a current number of blocking flow control class transactions already in the memory  
17 access request transaction queue is not less than the blocking flow control class  
18 transaction threshold.

19           9. The apparatus for preventing a deadlock according to claim 8, further  
20 comprising:

21           a second register configured to store an entry threshold indicating a maximum  
22 number of entries allowed to be processed in the memory access request transaction  
23 queue; and

24           wherein the coherency controller is configured to prevent the memory access  
25 request transaction queue from accepting any new entry if a current number of entries  
26 already in the memory access request transaction queue is not less than the entry  
27 threshold.

28           10. The apparatus for preventing a deadlock according to claim 9, wherein:

29           each of the entry threshold and the blocking flow control class transaction  
30 threshold is configurable by at least one of a user of the distributed shared memory  
31 system and a system software; and

32           wherein the entry threshold and the blocking flow control class transaction  
33 threshold are each selected so that the blocking flow control class transaction threshold is  
34 less than the entry threshold.